Listing of Claims

The below listing of claims will replace all prior versions of claims in the application.

1. (Currently Amended) A method for hiding information in images, the method comprising the operations of:

providing information sought to be hidden;

preparing the information sought to be hidden for insertion into an image;

providing image data configured as a plurality of bit planes wherein one of the bit planes defines a most significant bit plane and another one of the bit planes defines a least significant bit plane;

selecting a suitable bit plane from among the plurality of bit planes for the insertion of the information; and

inserting the information sought to be hidden into the image,

wherein the operation of selecting a suitable bit plane comprises:

selecting an initial bit plane that is not the most significant bit plane and that is not the least significant bit plane;

introducing the information sought to be hidden into a suitable site in the initial bit plane and generating a modified image;

determining if the modified image is of satisfactory quality compared to an unmodified image; and

if the modified image is of satisfactory quality, inserting the information into the image, and

if the modified image is not of satisfactory quality, choosing another bit plane and repeating the steps of selecting, introducing, and determining until an image of satisfactory quality is obtained; and

if an image of satisfactory quality can not be obtained, discarding the image as unsatisfactory for containing the information sought to be hidden

2. (Original) A method as in Claim 1, wherein the operation of inserting the information sought to be hidden into the image comprises inserting the information into the suitable bit plane.

3. (Currently Amended) A method as in Claim 1, wherein the operation of preparing the information sought to be hidden for insertion into an imagecomprises ~~includes~~ encoding the information.

4. (Currently Amended) A method as in Claim 3, wherein the operation of preparing the information further comprises ~~includes~~ the step of encrypting the information.

5. (Original) A method as in Claim 3, wherein the information comprises watermark information.

6. (Original) A method as in Claim 4, wherein the information comprises watermark information.

7. (Original) A method as in Claim 3, wherein the information comprises messages.

8. (Original) A method as in Claim 4, wherein the information comprises messages.

9. (Cancelled)

10. (Cancelled)

11. (Currently Amended) A method as in Claim 1 ~~Claim 9~~, wherein the operation of providing an image configured as a plurality of bit planes comprises ~~includes~~ providing an image configured in at least eight bit planes numbered sequentially from the most significant bit plane to the least significant bit plane.

12. (Cancelled)

13. (Currently Amended) A method as in Claim 11, wherein the operation of selecting a suitable bit plane from among the at least eight bit planescomprises ~~includes~~ selecting

a bit plane from among the group of bit planes consisting of the fourth, fifth, sixth, and seventh bit planes.

14. (Currently Amended) A method as in Claim 11, wherein the operation of selecting a bit plane from among the at least eight bit planes comprises ~~includes~~ selecting a fourth bit plane.

15. (Cancelled)

16. (Currently Amended) A method as in Claim 1, wherein the operation of selecting a suitable bit plane and inserting the information comprise ~~includes~~,

selecting more than one of the bit planes;

introducing the information into each selected bit plane to create a series of trial images; and

evaluating each of the trial images using an adaptive algorithm that compares and evaluates the image quality of the trial images with respect to an original image to select a suitable image plane.

17. (Currently Amended) A method as in Claim 16, wherein the operation of introducing the information into each selected bit plane to create a series of trial images comprises ~~includes~~:

dividing the selected bit plane into at least one block of pixels;

analyzing at least one block of pixels to determine if it offers a suitable site for the introduction of said information into the selected bit plane; and

introducing the information into the at least one block of pixels to create the series of trial images.

18. (Cancelled)

19. (Currently Amended) A method for hiding information in images, the method comprising:

providing an image sensor having a digital pixel sensor, analog to digital conversion circuitry, image conversion circuitry, and memory all formed on a single chip;

providing information sought to be hidden;

preparing the information sought to be hidden for insertion into an image;

the image sensor providing at least one original image, each original image comprising image data configured as a plurality of bit planes wherein one of the bit planes defines a most significant bit plane and another one ofthe bit planes defines a least significant bit plane;

selecting a suitable bit plane for the insertion of the information sought to be hidden; and

inserting the information sought to be hidden,

wherein the operation of selecting a suitable bit plane comprises:

selecting an initial bit plane that is not the most significant bit plane and that is not the least significant bit plane;

introducing the information sought to be hidden into a suitable site in the initial bit plane and generating a modified image

determining if the modified image is of satisfactory quality compared to an unmodified image; and

if the modified image is of satisfactory quality, inserting the information into the image, and

if the modified image is not of satisfactory quality, choosing another bit plane and repeating the steps of selecting, introducing, and determining until an image of satisfactory quality is obtained; and

if an image of satisfactory quality can not be obtained, discarding the image as unsatisfactory for containing the information sought to be hidden

20. (Original) The method of Claim 19, wherein the operation of providing the information sought to be hidden includes encoding the information in an appropriate format and encrypting the information.

21. (Cancelled)

22. (Currently Amended) A single-chip digital image sensor comprising:

a substrate having formed thereon a digital sensor array;

the digital sensor array including a plurality of light sensitive digital pixel sensors which output digital signals corresponding to an image, the digital signals having digital values corresponding to the image;

at least one memory for storing the digital values provided by the digital sensor array as a plurality of bit planes and for storing digital information sought to be inserted into the image, wherein one of the bit planes defines a most significant bit plane and another one of the bit planes defines a least significant bit plane and

image modification circuitry, which receives from memory the plurality of bit planes corresponding to the image and the digital information sought to be inserted into the image, and analyzes the bit planes to determine a suitable site for inserting the information sought to be inserted, and which inserts the information into the suitable site to form a steganographically enhanced image,

wherein the image modification circuitry selects an initial bitplane that is not the most significant bit plane and that is not the least significant bit plane, the information sought to be hidden is introduced into a suitable site in the initial bit plane and a modified image is generated, the image modification circuitry further determines if the modified image is of satisfactory quality compared to an unmodified image, such that if the modified image is of satisfactory quality, the image modification circuitry causes the information to be inserted into the image, and if the modified image is not of satisfactory quality, the image modification circuitry chooses another bit plane and he operations of selecting, introducing and determining are repeated until an image of satisfactory quality is obtained, and the image modification circuitry discards the image as unsatisfactory for containing the information sought to be hidden if an image of satisfactory quality cannot be obtained.

23. (Cancelled)